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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,627	07/21/2003	Luan C. Tran	MI22-2358	6592
21567	7590	07/28/2005	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			KENNEDY, JENNIFER M	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

HA

Office Action Summary	Application No.	Applicant(s)	
	10/624,627	TRAN, LUAN C.	
	Examiner	Art Unit	
	Jennifer M. Kennedy	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/21/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/11/05, 7/15/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 62-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (U.S. Patent No. 6,180,468) in view of Shenai et al. (U.S. Patent No. 4,985,740).

In re claim 62, Yu et al. disclose a method of forming a semiconductor construction, comprising:

forming a dielectric material over a semiconductive substrate material (26, 28, 30);

patterning the dielectric material to form at least two patterned blocks, a pair of adjacent blocks being separated by a first gap, each block having a sidewall within the first gap (26, 28, 30, see column 3, lines 13-20 and column 4, lines 14-18);

forming a pair of spacers (32, 34) along the sidewalls and within the first gap, the spacers having lateral edges separated by a gap, the second gap being narrower than the first gap (see Figure 4);

while the spacers remain along the sidewalls, implanting at least one dopant into the semiconductive material within the second gap to form a doped region (see Figure 4 and column 4, lines 27-32); and

removing the spacers from along the sidewalls (see Figure 5 and column 4, lines 27-32).

Yu et al. discloses the method of filling the gap with a gate material including polysilicon, but Yu et al. does not disclose the method further comprising depositing a material comprising at least one of a metal and a metal nitride within the gap.

Shenai et al. disclose the method further comprising depositing a material comprising at least one of a metal and a metal nitride over the polysilicon layer to form a gate of polysilicon and a metal or metal nitride.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a metal or metal nitride over the polysilicon gate and within the gap of Yu et al. in order to form a gate with lower sheet resistance (see abstract).

In re claim 63, the combined Yu et al. and Shenai et al. disclose the method further comprising after removing the spacers, and prior to the depositing, forming a layer of polysilicon over the semiconductive material within the gap and along the sidewalls (see column 4, lines 38-42).

In re claim 64, the combined Yu et al. and Shenai et al. disclose the method as claimed and rejected above including the method of planarizing the gate material, the gate material of the combined Yu et al. and Shenai et al. being a polysilicon, metal combination (see Yu et al. column 4, lines 37-42 and Shenai column 5, lines 22-35).

In re claim 65, Shenai et al. discloses the method wherein the material comprises tungsten (see column 5, lines 22-35).

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In re claim 66, Yu et al. disclose the method wherein the at least one dopant comprises indium (see column 4, lines 27-32).

In re claim 67, Yu et al. disclose the method as claimed and rejected above including forming the second gap which has a width that is about half the width of the first gap, but does not explicitly disclose the method wherein the second gap is less than or equal to half the width of the first gap.

The examiner notes that Applicant does not teach that the relative widths of the first gap and second gap solves any stated problem or are for any particular purpose, other than that for the second gap to be narrower than the first gap. Therefore, forming the second gap wherein the second gap is less than or equal to half the width of the first gap lacks criticality in the claimed invention and does not produce unexpected or novel results. Thus, it would have been obvious matter of design choice to form the second gap to have a width less than or equal to half the width of the first trench since it would have allowed for the channel dopant to be spaced apart from the source drain region as desired in Yu et al. (see column 2, lines 10-45) and would allow for miniaturization of the device and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233, MPEP 2144.05 II A.

Response to Arguments

Applicant's arguments with respect to claims 62-67 have been considered but are moot in view of the new ground(s) of rejection.

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Applicants argue, however, that the combination of Yu et al. and Shenai do not anticipate or render obvious independent claim 62, because that Shenai does not disclose the method of forming a material of a metal and a metal nitride with in a gap. The examiner notes that Yu et al. is relied upon for showing the method of forming a gap between two patterned blocks and forming a gate material between the blocks. Shenai et al. is relied upon to show that in addition to polysilicon material a metal such as tungsten can be utilized as a gate material to reduce resistance. Therefore, in the combined Yu et al. and Shenai et al. the gate material of polysilicon and a metal is formed in the gap. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

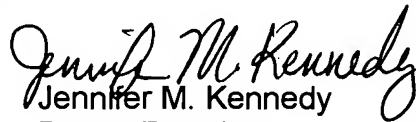
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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Kennedy whose telephone number is (571) 272-1672. The examiner can normally be reached on Mon.-Fri. 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jennifer M. Kennedy
Patent Examiner
Art Unit 2812

jmk